Placenta Percreta Presenting as a Pinhole Uterine Rupture and Acute Abdomen

Fang-Yu Hung, Pu-Tsui Wang, Shun-Long Weng, Chih-Ping Chen[1]*

Department of Obstetrics and Gynecology, Hsin Chu Mackay Memorial Hospital, Hsinchu, and [1]Department of Obstetrics and Gynecology, Mackay Memorial Hospital, Taipei, Taiwan.

Abnormal placentation is caused by a defect in the decidua basalis. The incidence of abnormal placentation is estimated to be between 1 in 540 deliveries in Thailand to 1 in 93,000 in the United States, with an average of 1 in 2,500 [1,2]. Abnormal placentation can be classified as placenta accreta, placenta increta or placenta percreta, according to the extent of myometrial villus infiltration. Placenta accreta is defined as the abnormal attachment or invasion of parts of the placenta to the underlying myometrium. Placenta increta involves the partial invasion of the chorionic villi into the myometrium. In placenta percreta, the chorionic villi completely penetrate the uterus.

The possibility of placenta percreta is often ignored during prenatal examination. It is usually only treated as an acute emergency, but may be associated with severe perinatal morbidity and mortality. The maternal mortality associated with placenta percreta has been reported to be as high as 10% [3]. In this report, we present a woman who developed acute abdomen and was intraoperatively diagnosed with placenta percreta.

A 35-year-old, gravida 5, para 1, abortus 3, woman was referred to our emergency department with acute abdominal pain at 32 weeks of gestation. Her obstetric history was remarkable for a previous cesarean section. Antenatally, she had been well, and a routine fetal anatomy screening scan at 20 weeks was reported to be normal. Physical examination on arrival revealed whole abdominal tenderness and rebound pain without antepartum hemorrhage. An emergent ultrasound scan showed that the placenta was in the right lower anterolateral position, covering the cervical os, indicating placenta previa. There was no obvious fluid accumulation in the pelvic cavity. There was no uterine contraction, and the fetal heart rate was about 160 beats/min, with good viability. Laboratory data revealed a low hemoglobin concentration of 9.1 g/dL and an elevated white blood cell count (18,000/mm^3). The general surgeon suspected acute appendicitis.

Emergent exploratory laparotomy was arranged by the surgical department because of acute abdomen. Hemoperitoneum was found during the operation, but the vermis appendix appeared normal. No surgical condition could be identified, and an obstetrician was, therefore, consulted intraoperatively. A small pinhole area of bleeding was detected on the right lower anterior uterine wall, with small amount of blood accumulated below the serosa. An intramural myoma measuring about 9 cm was located at the anterior uterine wall. The lower segment of the uterus was distended and in impending danger of rupturing. Emergent cesarean section was performed, and a premature fetus was delivered. The neonate weighed 1,984 g and had Apgar scores of 6 and 8 at 1 and 5 minutes, respectively. The placenta was fragile and located at the right lower anterolateral uterine wall. The upper part of the placenta invaded the whole thickness of the myometrium, resulting in uterine perforation and bleeding. Resection of the invaded myometrium was performed after separation of the placenta. Because of difficulties in repairing the myometrium near the intramural myoma, a myomectomy was performed and the uterus was then repaired.

The estimated blood loss was 1,700 mL, and the patient received transfusions of 6 units of packed red blood cells and 6 units of fresh frozen plasma during the operation. Her postoperative course was uneventful, and she left the hospital 12 days later.

The pathology report revealed thin or absent intervening decidual tissue between the anchoring chorionic villi and the myometrium, and a focally thin myometrium. The chorionic villi reached the serosa. These features confirmed the diagnosis of placenta percreta.

Abnormal placentation occurs when there is a defect of the decidua basalis, leading to abnormally invasive implantation of the placenta into the myometrium of the uterus [4]. Placenta accreta is defined by chorionic villi on the myometrial surface, placenta increta by villus

*Correspondence to: Dr Chih-Ping Chen, Department of Obstetrics and Gynecology, Mackay Memorial Hospital, 92, Section 2, Chung-Shan North Road, Taipei, Taiwan.
E-mail: cpc_mmh@yahoo.com
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infiltration into the myometrium, and placenta percreta by infiltration through the entire myometrium to invade the serosa and beyond. Placenta percreta is the most severe form, because the villi not only infiltrate the serosa, but invasion of the neighboring organs such as the urinary bladder and the bowel can also occur, leading to severe complications. Placenta percreta is the rarest form of abnormal placentation and is estimated to represent about 5–7% of cases [1].

The majority of cases of placenta percreta are associated with a history of previous cesarean section, which results in a scarred uterus [2,5]. Other risk factors include a history of previous myomectomy, placenta previa, dilatation and curettage, endometriosis, submucosal myoma, high parity, and an advanced maternal age [2,5]. The incidence of placenta percreta appears to be rising, especially in Asian countries, probably owing to the rise in rates of cesarean section. About 75% of placenta percreta cases are associated with placenta previa [2]. The identified risk factors in the current case were previous cesarean section, placenta previa, and advanced maternal age.

Some biochemical markers have been investigated for their use in screening patients for placenta accreta. O'Brien et al [3] reported that elevated maternal α-fetoprotein values were associated with the extent of myometrial or extrauterine invasion. Therefore, it was suggested that the presence of placenta percreta should be considered in the absence of fetal anomalies in patients with unexplained elevated maternal α-fetoprotein levels [6].

Most cases of placenta percreta present at the time of cesarean section. Other presenting symptoms are antepartum hemorrhage, acute abdomen, and hypovolemic shock resulting from the ruptured uterus. Hematuria may be noted as a complication at the third stage of labor if the bladder is involved. Similar to our current case, another reported case [7] presented as acute abdomen and was diagnosed with acute appendicitis. Also as in our case, the hemorrhage was quite slight during the early stage of uterine rupture because of placenta percreta. Maternal vital signs were stable, and the fetal monitor showed a reactive fetal heart rate with no uterine contraction. The presenting symptoms thus mimicked peritonitis, despite their purely obstetric cause.

Placental accreta, especially placenta percreta, can have a catastrophic outcome, even when diagnosed before surgical intervention. The traditional treatment for placenta percreta is cesarean hysterectomy [3]. Shih et al [8] reported that balloon occlusion devices placed in both the internal iliac arteries before cesarean section could dramatically reduce intraoperative hemorrhage. In the case of conservative treatment, the placenta is left in the uterine cavity and adjuvant methotrexate therapy is administered [9]. The average time for placental resorption in patients with placenta percreta is 5.5 months. Risks of sepsis and delayed hemorrhage are also incurred. The choice of whether to perform a traditional cesarean hysterectomy or to preserve the uterus by conservative treatment should be made on a case-by-case basis. Particular consideration should be given to the management of massive hemorrhage, including the availability of blood transfusion [4,10]. The early replacement of blood products helps to prevent disseminated intravascular coagulation and thus improves patient outcome.

Placenta percreta is a rare but severe obstetric complication that is potentially life threatening for both the mother and fetus. In the early stage of uterine rupture caused by an abnormally invasive placenta, the presenting symptoms may mimic surgical conditions such as acute appendicitis or intestinal obstruction. It is important to maintain a high level of clinical suspicion for this disease in pregnant women with acute abdomen, especially those with specific risk factors.

References

1. Hudon L, Belfort MA, Broome DR. Diagnosis and management of placenta percreta: a review. *Obstet Gynecol Surv* 1998;53:509–17.
2. Wu S, Kocherginsky Hibbard MJ. Abnormal placentation: twenty-year analysis. *Am J Obstet Gynecol* 2005;192:1458–61.
3. O'Brien JM, Barton John R, Donaldson ES. The management of placenta percreta: conservative and operative strategies. *Am J Obstet Gynecol* 1996;175:1632–8.
4. McCarthy EG, Nichols EO. Ruptured uterus due to placenta percreta. *Am J Surg* 1950;80:485–6.
5. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. *Am J Obstet Gynecol* 1997; 177:210–4.
6. Zelop C, Nadel A, Frigoletto FD Jr, Pauker S, MacMillan M, Benacerraf BR. Placenta accreta/percreta/increta: a cause of elevated maternal serum alpha-fetoprotein. *Obstet Gynecol* 1992;80:693–4.
7. Waegemaekers BJ, Gerretsen G, Billig SN. Acute abdomen due to placenta percreta. *Eur J Obstet Gynecol Reprod Biol* 1987;25:335–9.
8. Shih JC, Liu KL, Shyu MK. Temporary balloon occlusion of common iliac artery: new approach to bleeding control during cesarean hysterectomy for placenta percreta. *Am J Obstet Gynecol* 2005;193:1756–8.
9. Yee YH, Kung FT, Yu PC, Hsu TY, Cheng YF. Successful conservative management of placenta previa totalis and extensive percreta. *Taiwan J Obstet Gynecol* 2008;47:431–4.
10. Thia EW, Tan LK, Devendra K, Yong TT, Tan HK, Ho TH. Lessons learnt from two women with morbidly adherent placentas and a review of literature. *Ann Acad Med Singapore* 2007;36:298–303.